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SYNTHESIS OF BRANCHED PERFLUOROALKANES BY FLUORINATION OF ALKYL SUBSTITUTED PERFLUORO OLEFINS

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The thermal and photochemical reaction between fluorine and polysubstituted perfluoroalkyl olefins are studied. The pattern of products confirms the mechanism previously outlined for hexafluoropropene trimers [1] : branched perfluoroalkanes are synthesized through subsequent elimination-readdition steps on long lived radical intermediates.

The rate and selectivity of fluorination are tightly related to the experimental parameters and the olefins used, and hence to the stability of intermediate radicals.

All products were identified by glc/ms and nmr ^{19}F analyses. Epr spectra of some intermediates will be presented.

1 V. Tortelli, C. Tonelli, communication presented at 12th International Symposium on Fluorine Chemistry, August 1988, Santa Cruz, CA, USA; K.V. Scherer et al., J. Am. Chem. Soc., 1985, 107 (1985) 718.